Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: **J13050207**

Project Name:

Customer Name(s): Bill Kennedy

Customer Address: 3195 Pine Hall Rd
Mailcode: Belews Steam Station
Belews Creek, NC 28012

Lab Contact: Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) _____ **Date:** 6/18/2014

Jason C Perkins

Program Comments:

in house report…was not set out….a summary report will be sent…see J13050208

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2013010541	BELEWS	08-May-13 1:30 PM		EFF. TANK - MF
2013010546	BELEWS	08-May-13 8:00 AM		BLANK MF

2 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separatel

Reviewed By: DBA Account Date: 6/5/2013

Certificate of Laboratory Analysis

Order # J13050207

Site: EFF. TANK - MF
Collection Date: 08-May-13 1:30 PM

Sample #: **2013010541**
Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
NITRITE + NITRATE (COLORIMETRIC)								
Nitrite + Nitrate (Colorimetric)	**36**	mg-N/L		0.5	50	EPA 353.2	05/20/2013 12:21	BGN9034
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 5**	ug/L		5	5	EPA 200.8	05/23/2013 11:23	DJSULL1
Selenium (Se)	**1010**	ug/L		5	5	EPA 200.8	05/23/2013 11:23	DJSULL1

Certificate of Laboratory Analysis

Order # J13050207

Site: BLANK MF

Sample #: **2013010546**

Collection Date: 08-May-13 8:00 AM

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

Order # J13050207

Level II QC Summary

Q13050233 C_NO2NO3 NITRITE + NITRATE (COLORIMETRIC)

Blank # 1

Parameter	Measured	Final	Units:	Dil	RDL	Relative Concentration	Qualifier
Nitrite + Nitrate (Colorimetric)	0.0023	0.0023	mg-N/L	1	0.01	< 1/2 RDL	-

LCS # 1

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Nitrite + Nitrate (Colorimetric)	1.18	5.89	mg-N/L	5	5.75	102	85	115	-

MS # 1 Parent Sample: J13050061 -- 2013009824

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Nitrite + Nitrate (Colorimetric)	0.773	0.773	mg-N/L	1	0.5	98.7	70	130	-

MSD # 1 Parent Sample: J13050061 -- 2013009824

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	RPD	Qualifier
Nitrite + Nitrate (Colorimetric)	0.77	0.77	mg-N/L	1	0.5	98.2	70	130	0.488	-

Certificate of Laboratory Analysis

Order # J13050207

Level II QC Summary

Q13050194 IMS_TRM TOTAL RECOVERABLE METALS BY ICP-MS

Blank # 1

Parameter	Measured	Final	Units:	Dil	RDL	Relative Concentration	Qualifier
Arsenic (As)	-0.185	-0.185	ug/L	1	1	< 1/2 RDL	-
Selenium (Se)	-0.0058	-0.0058	ug/L	1	1	< 1/2 RDL	-

LCS # 1

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	110	110	ug/L	1	100	110	85	115	-
Selenium (Se)	101	101	ug/L	1	100	101	85	115	-

MS # 1 Parent Sample: J13050207 -- 2013010540

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	21.4	107	ug/L	5	100	105	70	130	-
Selenium (Se)	17.3	86.4	ug/L	5	100	83.6	70	130	-

MSD # 1 Parent Sample: J13050207 -- 2013010540

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	RPD	Qualifier
Arsenic (As)	22.2	111	ug/L	5	100	109	70	130	3.97	-
Selenium (Se)	18.4	92	ug/L	5	100	89.2	70	130	6.54	-

MS # 2 Parent Sample: J13050207 -- 2013010537

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	21.3	107	ug/L	5	100	105	70	130	-
Selenium (Se)	97.5	487	ug/L	5	100	90.2	70	130	-

MS # 3 Parent Sample: J13050207 -- 2013010538

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	22	110	ug/L	5	100	108	70	130	-
Selenium (Se)	19.4	96.9	ug/L	5	100	92.2	70	130	-

MS # 4 Parent Sample: J13050207 -- 2013010539

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	22.1	110	ug/L	5	100	109	70	130	-
Selenium (Se)	27.6	138	ug/L	5	100	99.5	70	130	-

MS # 5 Parent Sample: J13050207 -- 2013010541

Parameter	Measured	Final	Units:	Dil	Spike	% Recovery	LCL	UCL	Qualifier
Arsenic (As)	16.9	84.3	ug/L	5	100	82.5	70	130	-
Selenium (Se)	219	1090	ug/L	5	100	79.5	70	130	-

June 18, 2014

Duke Energy
ATTN: Jay Perkins
13339 Hagers Ferry Road
Huntersville NC 28078
jperkins@duke-energy.com

Revision 2: This revision includes results only for BRL Sample IDs 1320012-05 and 1320012-10.

RE: Project DUK-HV1201 Client Project: J13050207

Dear Jay Perkins,

This report contains results for the 2 samples received by Brooks Rand Labs (BRL) on May 14, 2013. The samples were logged-in for the contracted analyses according to the chain-of-custody form(s). The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were method blank corrected as described in the calculations section of the relevant BRL SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details. All data is reported without qualification (with the exception of concentration qualifiers), and all associated quality control sample results meet the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, please see the *Report Information* page in your report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves

Lydia Greaves
Project Manager
lydia@brooksrand.com

3958 6th Avenue NW Seattle WA 98107 · P(206) 632-6206 · F(206) 632-6017 · brl@brooksrand.com · www.brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksrand.com/about/accreditations-certifications/>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction
IBL	instrument blank		

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

3958 6th Avenue NW Seattle WA 98107 · P(206) 632-6206 · F(206) 632-6017 · brl@brooksrand.com · www.brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
Effluent Tank-MF	1320012-05	FGD Wastewater	Sample	05/08/2013	05/14/2013
Blank-MF	1320012-10	DIW	Field Blank	05/08/2013	05/14/2013

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	05/17/2013	05/20/2013	B130795	1300344

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
Blank-MF										
1320012-10	Hg	DIW	T	0.15	U	0.15	0.40	ng/L	B130795	1300344
Effluent Tank-MF										
1320012-05	Hg	FGD Wastewater	T	113		0.79	2.11	ng/L	B130795	1300344

3958 6th Avenue NW Seattle WA 98107 · P(206) 632-6206 · F(206) 632-6017 · brl@brooksrand.com · www.brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B130795
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B130795-SRM1	**Certified Reference Material (1317016, NIST 1641d 1000x dilution)**						
	Hg		15.68	16.37	ng/L	104% 85-115	
B130795-MS2	**Matrix Spike (1320012-01)**						
	Hg	161.0	421.1	610.3	ng/L	107% 71-125	
B130795-MSD2	**Matrix Spike Duplicate (1320012-01)**						
	Hg	161.0	421.1	624.4	ng/L	110% 71-125	2% 24

Method Blanks & Reporting Limits

Batch: B130795
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B130795-BLK1	0.22	ng/L
B130795-BLK2	0.24	ng/L
B130795-BLK3	0.24	ng/L
B130795-BLK4	0.19	ng/L

Average: 0.22 **Standard Deviation:** 0.02 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.39

3958 6th Avenue NW Seattle WA 98107 · P(206) 632-6206 · F(206) 632-6017 · brl@brooksrand.com · www.brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1320012-05
Sample: Effluent Tank-MF
Report Matrix: FGD Wastewater
Sample Type: Sample
Collected: 05/08/2013
Received: 05/14/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	13-0001	none	n/a		Cooler

Lab ID: 1320012-10
Sample: Blank-MF
Report Matrix: DIW
Sample Type: Field Blank
Collected: 05/08/2013
Received: 05/14/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	13-0001	none	n/a		Cooler

Shipping Containers

Cooler

Received: May 14, 2013 10:30
Tracking No: 557566434797 via FedEx
Coolant Type: None
Temperature: ambient

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

3958 6th Avenue NW Seattle WA 98107 · P(206) 632-6206 · F(206) 632-6017 · brl@brooksrand.com · www.brooksrand.com

1320012

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

DUKE ENERGY®

Analytical Laboratory Services
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-4349

Analytical Laboratory Use Only

Work Order: J13050207 | Matrix: other | Samples Originating From: NC___ SC___ OH___
Logged By: cpk | Date & Time: 5-9-13 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Other ___ Plant ___ RCRA Waste ___
Vendor: B. RAND | Cooler Temp (C): NA

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

1)Project Name: Belews - FGD Wastewater		2)Phone No:
3)Client: Bill Kennedy, Joe Potts		4)Fax No:
5)Business Unit:	6)Project ID:	7)Mail Code:
8) Operating Unit: BC00	9)Activity ID:	10)Process ID: BMCEFGD

PO #

[15]Preserv.:1=HCl 2=H_2SO_4 3=HNO_3 4=Ice 5=None: 3 | 2,4 | 5

LOOK...
Customer to complete all appropriate areas.

Important: When **specific accounting** has been established and is not indicated above we need the following: 1) Enter correct accounting in all 5 accounting fields above. or 2) Provide correct accounting for Operating Unit and Process ID.

LAB USE ONLY [11]Lab ID	[12]Chem Desktop No.	[13]Sample Description or ID	[14]Collection Information Date	Time	Signature	[17]Comp.	[18]Grab	Use EPA methods listed	As, Se - 200.8[1]	Nitrate-Nitrite - 353.2	Hg^2 - 1631 (V-BRand)	[20]Total # of Containers
								[15]Analyses Required				
2013010537		Effluent Tank - CS	8-May	8:00			X		1	1	1	
38		Bio 2 Effluent - BC	8-May	8:15			X		1	1	1	
39		2nd Stage Cell - RS	8-May	8:16			X		1	1	1	
40		Bio 2 Effluent - AS	8-May	10:00			X		1	1	1	
41		Effluent Tank - MF	8-May	13:30			X		1	1	1	
42		Blank-CS	8-May	8:00							1	
43		Blank-BC	8-May	8:00							1	
44		Blank-RS	8-May	8:00							1	
45		Blank-AS	8-May	8:00							1	
46		Blank-MF	8-May	8:00							1	

Customer to complete appropriate columns to right

Matrix is FGD wastewater

[2]In-process water, no Hg Blk sample supplied

21)Relinquished By	Date/Time	Accepted By:	Date/Time 5/14/13 10:30
Relinquished By	Date/Time	Accepted By:	Date/Time
Relinquished By: cpk	Date/Time 5-13-13	Accepted By:	Date/Time
Sealed/Locked By: cpk	Date/Time 5-13-13	Sealed/Lock Opened By	Date/Time

24)Comments: IMS TRM

[1] Use a total recoverable digestion method for the As and Se

[22]Requested Turnaround
14 Days ___
*7 Days ___
*48 Hr 5-28-13
Other ___ 24 Hr ___
*Add. Cost Will Apply

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

DUKE ENERGY®

Analytical Laboratory Services
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-4349

Analytical Laboratory Use Only

Work Order: J13050207 | Matrix: other | Samples Originating From: NC___ SC___ OH___
Logged By: cpb | Date & Time: 5-9-13 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Other ___ Plant ___ RCRA Waste ___
Vendor: B. RAND | Cooler Temp (C): NA
PO #:

Page 1 of 1

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

1)Project Name	Belews - FGD Wastewater	2)Phone No:	
3)Client	Bill Kennedy, Joe Potts	4)Fax No:	
5)Business Unit:		6)Project ID:	7)Mail Code:
8) Operating Unit:	BC00	9)Activity ID:	10)Process ID: BMCEFGD

Important: When specific accounting has been established and is not indicated above we need the following: 1) Enter correct accounting in all 5 accounting fields above, or 2) Provide correct accounting for Operating Unit and Process ID.

LOOK... Customer to complete all appropriate areas.

[15]Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

[16]Analyses Required

Use EPA methods listed

LAB USE ONLY [11]Lab ID	[12]Chem Desktop No.	[13]Sample Description or ID	[14]Collection Information: Date	Time	Signature	[17]Comp.	[18]Grab	3	2,4	5	[20]Total # of Containers
								As, Se - 200.8[1]	Nitrate-Nitrite - 353.2	Hg^2 - 1631 (V-BRand)	
2013010537		Effluent Tank - CS	8-May	8:00			X	1	1	1	
38		Bio 2 Effluent - BC	8-May	8:15			X	1	1	1	
39		2nd Stage Cell - RS	8-May	8:16			X	1	1	1	
40		Bio 2 Effluent - AS	8-May	10:00			X	1	1	1	
41		Effluent Tank - MF	8-May	13:30			X	1	1	1	
42		Blank-CS	8-May	8:00						1	
43		Blank-BC	8-May	8:00						1	
44		Blank-RS	8-May	8:00						1	
45		Blank-AS	8-May	8:00						1	
46		Blank-MF	8-May	8:00						1	

Customer to complete appropriate columns to right

Matrix is FGD wastewater

[2]In-process water, no Hg Blk sample supplied

21)Relinquished By	Date/Time	Accepted By:	Date/Time
Relinquished By	Date/Time	Accepted By:	Date/Time
Relinquished By	Date/Time	Accepted By:	Date/Time
Sealed/Locked By	Date/Time	Sealed/Lock Opened By	Date/Time

24)Comments: IMS TRM

[1] Use a total recoverable digestion method for the As and Se

[22]Requested Turnaround
14 Days _____
*7 Days _____
*48 Hr _____
*Other ____24 Hr____
* Add. Cost Will Apply